

Montana Weather/Precipitation Summary

June 2012 by NOAA's National Weather Service Great Falls Montana

June temperatures were below normal west and above normal east (Fig. 3). For the past 12-months, statewide composite temperatures are running a 2.3F positive anomaly, ranking in the 69th percentile (1=coldest). This was the warmest June since 2007. There were only two days during the month on which high temperatures averaged below normal (Fig. 1). Precipitation was below normal over much of the state, except the northwest (Fig. 4). The composite precipitation for June ranked at the 19th percentile for the state (1=driest). This was the second consecutive month with below normal precipitation, and the driest June since 2000. Winds were higher than normal. A gust to 100 mph was recorded during strong downburst winds near Danvers (Fergus), with a high gust of 82 mph at Logan Pass. Soil moisture dried out considerable over central and eastern Montana, but record high precipitation across northwestern Montana caused statewide average conditions to remain near normal for June. Eastern Montana was under a ridge of high pressure during June (Fig. 2). Upper level features were near normal for June, with generally southwest flow aloft. A stronger-than-normal trough of low pressure along the west coast contributed to below normal temperatures and above normal precipitation in northwest Montana. Refer to NCDC's State of the Climate report for the latest monthly discussion: <http://www.ncdc.noaa.gov/sotc/>.

June 1-11

Regular weather systems passed through the state during this period, bringing precipitation and both warm and cold temperatures. On the second, thunderstorms over northeast Montana produced 61 mph wind gusts near Lindsay (Dawson) and one-inch hail near Forest Grove (Fergus). Another weather system produced severe thunderstorms on the fourth. Golf-ball size hail fell near Hamilton. As this system pushed into central Montana, 2.75-inch hail fell near Carter and 87 mph wind gusts occurred near Loma (Chouteau). Warm air in southwest Montana produced a record high temperature at Dillon, reaching 90F. Their old record was 89F. Another round of severe thunderstorms occurred on the fifth. Severe thunderstorms started near Livingston, producing 69 mph wind gusts. These storms moved to near White Sulphur Springs (Meagher) producing two-inch hail and a tornado that damaged the city's water tank. As the storms moved northeast, they produced a swath of hail through Judith Basin, western Fergus, and eastern Chouteau Counties. Downburst winds gusted to 90 mph at Hobson and 100 mph near Danvers (Fergus). A tornado was sighted northeast of Moccasin (Judith Basin), and southeast of Big Sandy (Chouteau). Behind this system, rain settled into the west, with two or more inches falling over higher elevations of Lincoln, Lake and Flathead Counties. Warm air across eastern Montana pushed high temperatures into the upper-90s. Miles City reached 99F on the fifth. The frontal system that produced the tornadic activity earlier pushed into eastern Montana and again spawned severe thunderstorms. Wind gusts to 89 mph occurred near Rock Springs (Rosebud), while large hail fell at scattered locations. Cooler air behind this system brought sub-freezing conditions to Bozeman on the 7th. They tied their record low for the date, reaching 30F. Meanwhile West Yellowstone and Wisdom dropped to 22F, and Hoodoo Basin (Mineral) cooled to 21F, for the lowest temperature of the month. Cooler air again settled across the state on the 10th, with 6-10 inches of snow fallings at the higher locations in southwest and central Montana.

June 12-21

A more settled and drier pattern occurred mid-month. While some heavy precipitation persisted in western Montana on the 13th, most of the rest of the state was dry. Noisy Basin (Flathead) picked up 1.3-inches of rain on the 13th. Windy days were interspersed during this period, too. Winds picked up on the 16th and 17th. On the 16th, gusts to 82 mph occurred at Logan Pass, while on the 17th gusts to 64 mph occurred west of Pendroy.

June 22-26

Severe thunderstorms and humid conditions prevailed during this period. On the 23rd, wind gusts to 79 mph occurred at Missoula, producing damage at the airport. This is one of the strongest wind gusts to occur at Missoula. Hail to one-inch also fell at scattered locations in the west. Large

hail and heavy rain also fell at Choteau (Teton), with 63 mph winds reported near Galata (Toole). Kalispell set a daily precipitation record, collecting 0.77-inches. The old daily record was 0.65-inches. From the 23rd through 26th, very high dew point temperatures prevailed across north central and eastern Montana. Some locations had their highest dew-point readings since 1975. At Cut Bank, the highest dew-point temperature was 64F, the highest since July 2002. At Great Falls the highest dew-point was also 64F, the highest since June 2005, and at Lewistown, the dew-point temperature reached 69F, the highest since July 1975, and the second highest of record. This moisture-rich air fueled severe thunderstorms over portions of the state. On the 24th, one-inch hail occurred near Saint Marie (Valley), with 73 mph wind gusts at Wolf Point. The strong winds snapped off several power poles in the area. Very warm air over southwest Montana pushed temperatures to record levels. On the 24th, Bozeman reached 97F, surpassing the record of 95 set in 1974. Helena topped out at 98. Their old record was 94 in 1986. Windy and hot conditions continued across southern Montana on the 26th. Gusts reached 68 mph at Norris Hill, while smoke from area fires spread over the region. Livingston recorded a gust to 71 mph, the highest gust in June since 1948. Miles City reached 111F, tying an all-time warmest temperature record first set in July 1901. Statewide, this did not set a record for the date as Wolf Point had reached 112F on this date in 1988. A 112F reading was also recorded at Baker on June 28, 2002.

June 27-30

High winds prevailed over then northern plains on the 27th. Gusts reached 71 mph west of Dupuyer and 76 mph at Heart Butte. Meanwhile, smoke from fires near Roundup, Lame Deer and Pony spread

Precipitation/convection

Severe convective weather occurred on nine days in June, the normal is 11 days.

June summary information:

High Temperature	111°F at Miles City (26 th)	Greatest Precip	8.64" at West Glacier (Flathead) 18.00" at Stahl Peak SNOTEL (Lincoln)
Low Temperature	21°F at Hoodoo Basin (7 th) (Mineral)		
Warmest Ave Temp	71.0°F at Miles City	Peak Wind Gust	100 mph near Danvers (6 th) 82 mph at Logan Pass (16 th)
Coollest Ave Temp	49.9°F at West Yellowstone		
Range of Temp departures	-5.6°F at Eureka to +5.3°F at Miles City	Highest Ave Wind	14.3 mph at Two Medicine 19.0 mph at Deep Creek
21 city mean monthly Temperature/Normal	61.8/60.5; 35 th coolest of record (since 1880) Oct-Jun: 39.2/36.5; 12 th warmest of record; warmest since 2000	20 city mean monthly wind speed/Normal	9.9 mph/9.0 mph; 14 th windiest of record. (since 1936) Oct-Jun: 9.3/9.4mph; 26 th calmest of record.
22 city mean monthly precipitation/Normal	1.77/2.30" – 77% of normal; 26 th driest of record. (since 1880) Oct-Jun: 10.79/10.84" – 60 th driest of record.	26 location mean soil moisture/normal	25.8/25.5%; 11 th wettest of record (since 1995). Oct-Jun: 19.4/20.5%; 5 th driest of record.

For the water-year, a statewide average of 10.79" of precipitation has fallen. This is near normal, but the driest since 2004.

The past year's seasonal snowfall was below average. The statewide average is 56.7-inches, while the 2011-12 season averaged 47.7-inches. This was the lowest average snowfall since the 2004-05 season.

**Historical Rank of Precipitation (inches)
for the Current Month and Water Year to Date**

Location	June	% of Norm	Rank	Pcntl	Oct 1 – Jun 30	% of norm	Rank	Pcntl	Years
Baker	1.47	58%			6.44	80%			14
Billings	0.24	13%	3	2	6.72	59%	27	24	111
Belgrade	0.94	38%	5	5	7.77	72%	7	8	75
Butte	1.05	46%	23	19	6.21	69%	20	16	118
Cut Bank	2.39	94%	51	49	8.01	111%	61	58	104
Dillon	0.26	13%	3	3	4.72	64%	7	8	72
Glasgow	2.36	101%	58	50	9.86	128%	78	69	112
Great Falls	1.06	42%	12	9	10.20	99%	56	46	120
Havre	1.76	80%	47	35	9.37	128%	88	66	132
Helena	0.54	26%	10	7	6.59	85%	21	15	134
Jordan	1.35	54%			6.46	77%			14
Kalispell	6.20	242%	119	100	16.11	122%	109	92	118
Lewistown	2.70	88%	44	37	14.11	119%	85	73	116
Livingston	1.16	49%	17	15	8.36	76%	20	18	107
Miles City	0.36	14%	4	2	4.18	47%	3	1	135
Missoula	2.73	128%	100	74	13.06	120%	106	81	130
Mullan Pass	1.54	59%	15	19	43.49	128%	63	89	71
Wolf Point	2.25	83%			7.49	95%			14
Glendive	1.20	50%	13	10	7.15	79%	23	20	109
Sidney	1.07	38%	5	6	4.18	45%	1	1	71
BZN-MSU	1.54	50%	24	17	13.25	86%	52	39	132

Rankings and Percentiles are 1=driest, higher numbers=wetter.

For an automated version of this chart, updated daily, go to

<http://www.wrh.noaa.gov/tfx/dx.php?wfo=tfx&type=&loc=products&fx=PCPNTOTALS>

At Billings, June precipitation of 0.24-inches driest made it the driest since 1961 and third driest of record. For the period from January through June, 4.39-inches has fallen, the 19th driest since 1934. At Bozeman, June's precipitation was the lowest since 1995, and the fifth lowest of record. At Dillon, precipitation of 0.26-inches was the driest in June since 1979, and the third driest of record. The first six-months of 2012 have been the driest since 1966, only 3.29-inches has fallen. June's precipitation of 0.54-inches at Helena has been the driest in June since 1985. Kalispell had their wettest June of record. The old record was set in 2005, when 5.66-inches of rain fell. The January-through-June period has been the wettest since 1996. At Miles City, June rainfall was the lowest since 1936, while the first 6-months of 2012 have been the driest since 1988. Sidney has had their lowest precipitation amount during the year so-far since 1952.

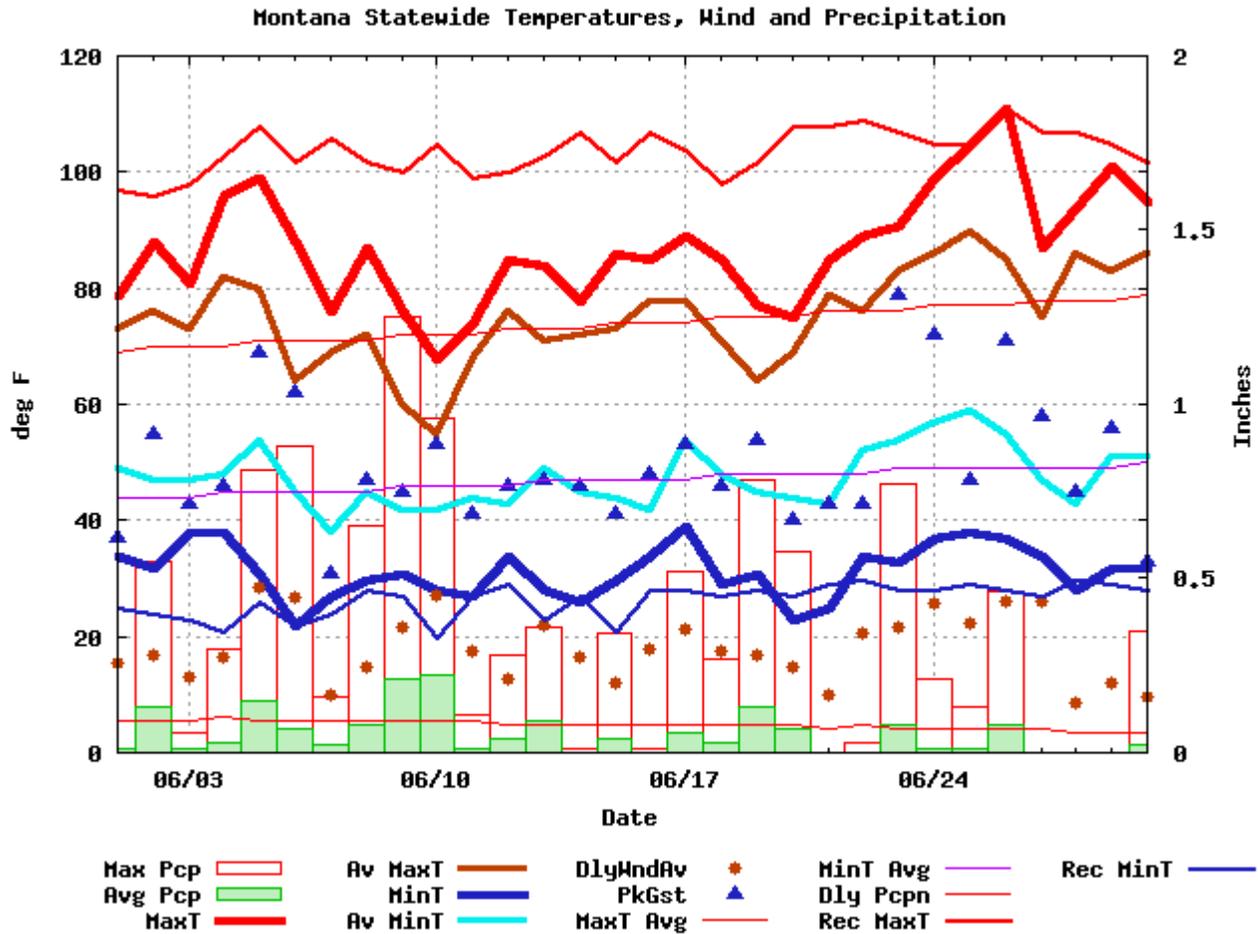
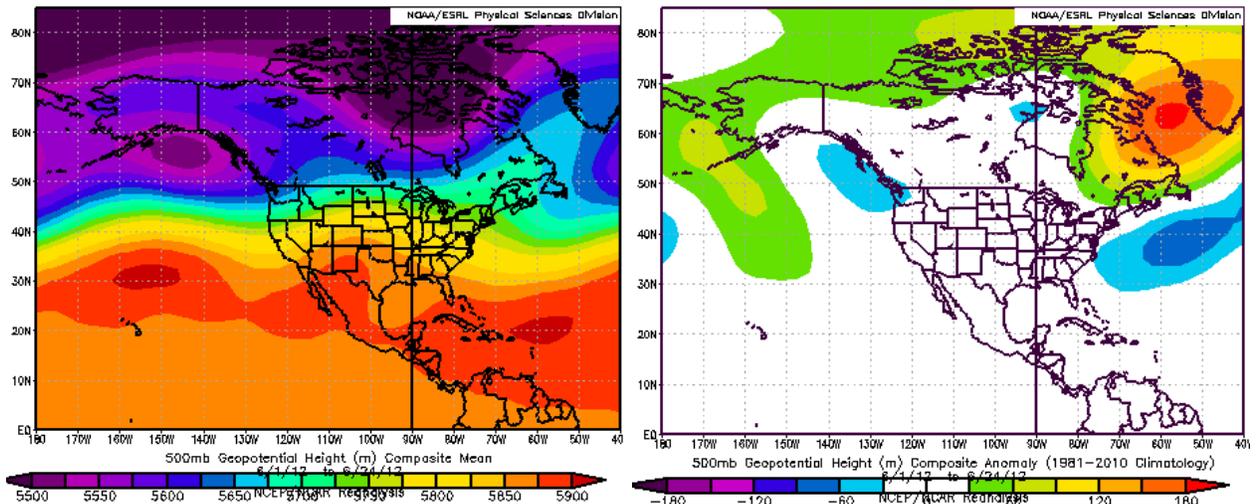


Figure 1. Composite Daily Highest and Lowest Temperature, Averages, Daily Maximum Precipitation and Averages, Daily average wind speed and gust from 43 Airport stations from across Montana.



Figures 2a (left); 2b (right). Mean flow at 500 millibars (~18,000 ft) for June 2012 (left). The ridge over most of Montana was near normal for June. The slightly below normal heights across the Pacific Northwest contributed to cooler temperatures across northwest Montana, while the ridge and dryness contributed to the warmer than normal conditions in the southeast (right).

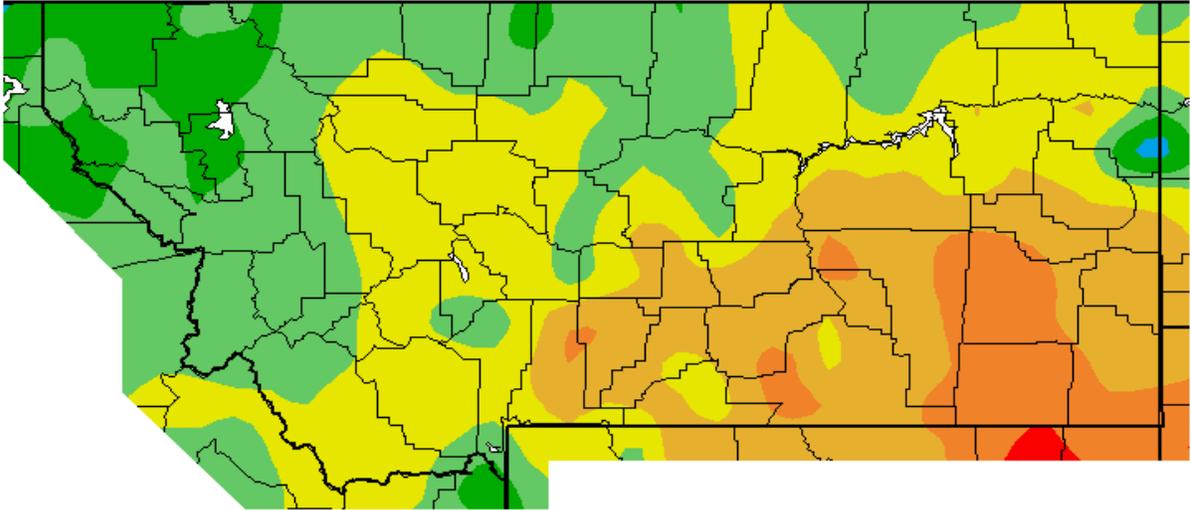


Figure 3. Temperature anomaly for June 2012 (Western Region Climate Center).

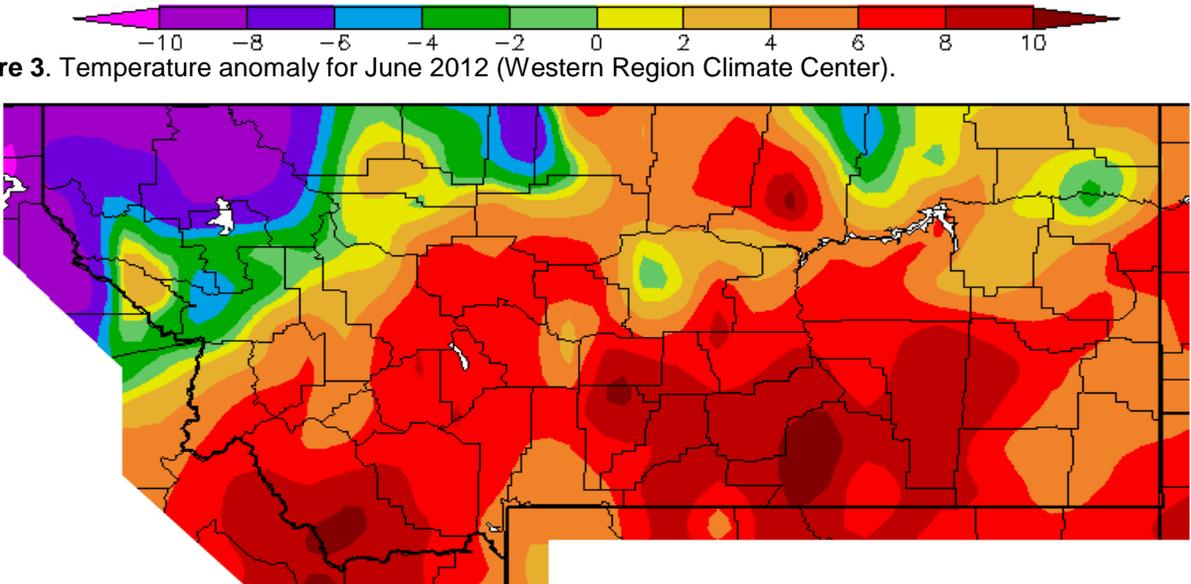


Figure 4. Precipitation anomaly (% of normal) for June 2012.

For a state map of % of normal water year precipitation (updated around the 7th of each month), go to: http://www.wrh.noaa.gov/tfx/image.php?wfo=tfx&type=data&loc=hydro&fx=watyr_pcntnorm.png

For the latest information on mountain snow pack from the NRCS, go to: <http://www.mt.nrcs.usda.gov/snow/index.html>

For the latest U.S. Drought Monitor, issued weekly by the Climate Prediction Center (CPC), go to: <http://www.drought.unl.edu/dm/monitor.html>

These data are preliminary and have not undergone final QC by NCDC. Therefore, these data are subject to revision. Final and certified climate data can be access at the National Climatic Data Center (NCDC) <http://www.ncdc.noaa.gov>. Many more links are on the Drought Information Page of the NWS Great Falls web site at <http://www.wrh.noaa.gov/tfx/main/drought.php?wfo=tfx>. The climatological record for normals is 1981-2010. The ranking period for temperature, precipitation and snowfall is since 1880. The ranking period for wind speeds is since 1936. The ranking period for soil moisture is since 1995.